National Institute of Environmental Health Sciences

Is climate change the “defining challenge of our age”?

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Abstract:

Climate change, some claim, is this century's most important environmental challenge. Mortality estimates for the year 2000 from the World Health Organization (WHO) indicate, however, that a dozen other risk factors contribute more to global mortality and global burden of disease. Moreover, the state-of-the-art British-sponsored fast track assessments (FTAs) of the global impacts of climate change show that through 2085-2100, climate change would contribute less to human health and environmental threats than other risk factors. Climate change is, therefore, unlikely to be the 21(st) century's most important environmental problem. Combining the FTA results with WHO's mortality estimates indicates that halting climate change would reduce cumulative mortality from hunger, malaria, and coastal flooding, by 4-10 percent in 2085 while the Kyoto Protocol would lower it by 0.4-1 percent. FTA results also show that reducing climate change will increase populations-at-risk from water stress and, possibly, threats to biodiversity. But adaptive measures focused specifically on reducing vulnerability to climate sensitive threats would reduce cumulative mortality by 50-75 percent at a fraction of the Kyoto Protocol's cost without adding to risks from water stress or to biodiversity. Such "focused adaptation" would, moreover, reduce major hurdles to the developing world's sustainable economic development, lack of which is the major reason for its vulnerability to climate change (and any other form of adversity). Thus, focused adaptation can combat climate change and advance global well-being, particularly of the world's most vulnerable populations, more effectively than aggressive GHG reductions. Alternatively, these benefits and more - reductions in poverty, and infant and maternal mortality by 50-75%; increased access to safe water and sanitation; and universal literacy - can be obtained by broadly advancing sustainable economic development through policies, institutions and measures (such as those that would meet the UN Millennium Development Goals) at a cost approximating that of the Kyoto Protocol. However, in order to deal with climate change beyond the 20852100 timeframe, the paper also recommends expanding research and development of mitigation options, reducing barriers to implementing such options, and active science and monitoring programs to provide early warning of any "dangerous" climate change impacts.

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Resource Description

Climate Scenario :

specification of climate scenario (set of assumptions about future states related to climate)

Special Report on Emissions Scenarios (SRES)

Special Report on Emissions Scenarios (SRES) Scenario: SRES A1, SRES A2, SRES B1, SRES

B2

Exposure :

weather or climate related pathway by which climate change affects health

Unspecified Exposure

Geographic Feature:

resource focuses on specific type of geography

None or Unspecified

Geographic Location:

resource focuses on specific location

Global or Unspecified

Health Co-Benefit/Co–Harm (Adaption/Mitigation):

specification of beneficial or harmful impacts to health resulting from efforts to reduce or cope with greenhouse gases

A focus of content

Health Impact:

specification of health effect or disease related to climate change exposure

General Health Impact

Mitigation/Adaptation:

mitigation or adaptation strategy is a focus of resource

Adaptation, Mitigation

Model/Methodology:

type of model used or methodology development is a focus of resource

Other Projection Model/Methodology

Other Projection Model/Methodology: discussion of many outcomes/exposure models

Population of Concern: A focus of content

Resource Type:

format or standard characteristic of resource

Review

Timescale:

time period studied

Long-Term (>50 years)

Vulnerability/Impact Assessment:

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content